

Everyday
**climate
choices**



Reverse cycle heating and cooling systems



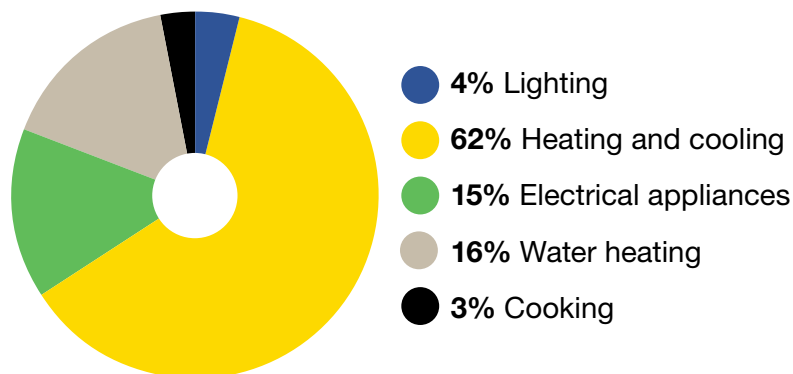
ACT
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Home Energy Support:
Rebates for homeowners

Heating and cooling make up about 60% of an average Canberra household's energy use. The most efficient heating and cooling systems available on the market today are reverse cycle air conditioners. These are sometimes called ducted and split systems.

Average energy use of a Canberra household



Adopted from *Energy Use in the Australian Residential Sector 1986–2020*

Why it's important

A reverse cycle heating system can heat your house quickly and will cost less to run than gas heating or other electric heating systems.

- Electric element heaters are usually portable and cheaper to purchase. However, they are not energy efficient, which can make them an expensive way to heat your room.
- Gas heating was previously promoted as a cheap way to heat your home with reduced emissions. This is no longer the case due to advances in reverse cycle heating technology and Canberra now being powered by 100% renewable electricity.
- Reverse cycle systems are the most energy efficient heating and cooling systems available today. A reverse cycle system can heat or cool your home quickly and easily.

Reverse cycle systems cost less to use than gas heating or other electric heating systems.

The last step in your transition to an all electric household is to abolish or disconnect your gas connection. While it is an individual household choice, the safest option is for you to abolish your connection. You will save money on your annual supply charge. Read more: <https://energy.act.gov.au/switching-off-your-gas-connection/>



Selecting a reverse cycle system

The table below shows comparisons between the three types of systems.

	Split system	Ducted system	Multi-head system
Best used in what situation?	Heating one room or area only. Ideal for apartments and townhouses. Not practical to have one in every room of a large house, but suitable if not all the house needs heating/cooling.	Whole of house. Ideal for larger houses and when rapid heating or cooling is required. Small units can be installed in townhouses. Not suitable for apartments.	Can be used in all sized houses, apartments, and townhouses. Halfway point between split systems and ducted systems.
Room zoning (heating only the rooms you are using)	Excellent. System heats one room only.	Ranges from limited to good, depending on system. Often services living areas constantly when running.	Very good. Can turn off multiple unused areas.
Other	Smaller systems have excellent efficiency. Look for 'H2' CoP ¹ which means the unit is well suited to Canberra's winters.	Ducting can have significant heat loss if not well insulated. Choose ducting with R1.5 insulation or better. Ducting through the ceiling reduces your level of ceiling insulation.	Can also use a small multi-head system for very large rooms that need multiple heating units.



¹ The CoP refers to the Co-efficient of Performance and describes how much heat is produced from the unit, for 1 unit of electricity input. Depending on the system size, a CoP greater than 3.5 is a good system but can be as high as 5.0.

Other things to consider

- All reverse cycle systems have an outside compressor unit. This is generally located on an outside wall but can also be located on the ground or even on the roof if there is limited outside space. Ask your supplier about where they would locate the compressor unit as the location may affect:
 - > Easy access for maintenance
 - > Noise from the unit affecting neighbours
 - > Ability for fresh air to contact the unit. Avoid enclosed courtyards and never enclose the compressor unit with slat fencing to hide it from view.
- Installing ducted or multi-head units in a large home may require an upgrade of your electricity supply to 3-phase power due to the significant power draw of these systems. There will be additional costs with this upgrade, but your supplier will be able to confirm if this is needed.
- To ensure high efficiency in the ACT climate, it is strongly encouraged that systems have a minimum operating temperature of at least -20 degrees Celsius and should utilise a variable speed compressor.
- If you are replacing a ducted gas system with a ducted reverse cycle system, you cannot re-use the gas ducts as they are too narrow and may have age-related issues.
- It is recommended that ducts have at least R1.5 insulation on the ducting, as this will minimise heat loss and lower running costs. Mention this to your supplier as they may not provide this by default.
- In smaller homes (2-bedroom apartments) or where only limited heating/cooling is required, split systems are more cost effective (\$2,000–\$4,000 installed depending on system size).
- In large homes (3 or more bedrooms) ducted or multi-head systems (\$7,000–\$15,000 installed) may be a more suitable choice.



Home Energy Support Program product requirements

To ensure good value for money, reverse cycle heating and cooling systems under the Program must meet the following requirements:

- The system model number must appear on the Greenhouse and Energy Minimum Standards register and be able to operate in a 'Cold Zone' as per the Minimum Energy Performance standards.
- The system installed must be electric. It cannot be gas.
- The system must be able to provide both heating and cooling functions.
- The system must meet the following H1 temperature condition requirements:

Ducted systems		Split and Multi-head systems	
System heating capacity	Minimum ACOP*	System heating capacity	Minimum ACOP*
Under 14kW	3.7	Under 7kW	4
14kW–20kW	3.3	7kW and above	3.8

*Annual Coefficient of Performance

Systems outside of the above heating capacities may be considered but will be assessed by the ACT Government on a case-by-case basis.

Indicative payback periods

Below are some indicative payback periods for upgrading your heating and cooling system from a gas system to an electric ducted reverse cycle system or split cycle system.

Heating and cooling — From gas to electric ducted reverse cycle					
EER	Energy Bill Before	Energy Bill After	Saved	System Cost*	Payback
2	\$4,020	\$1,443	\$2,577	\$9,958	3.9 years
4	\$2,289	\$821	\$1,468	\$9,958	6.8 years

Heating and cooling — From gas to electric split system reverse cycle					
EER	Energy Bill Before	Energy Bill After	Saved	System Cost*	Payback
2	\$4,020	\$1,082	\$2,938	\$7,144	2.4 years
4	\$2,289	\$616	\$1,673	\$7,144	4.3 years

*After rebate

*As of September 2022. Subject to change.

Choose the best plan for you

Make sure that you are on the best electricity plan for your needs. Contact different energy retailers to find out what plans and discounts are available.

We also encourage you to speak to your energy provider about any additional discounts or supports they may have on offer for energy efficient home upgrades.



Contact us

We are here to help. If you need some help with forms or have any questions, please call or email:

Phone: 1300 141 777

Email: homeenergysupport@act.gov.au



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